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EXAMINER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/643,129	FROST ET AL.
	Examiner	Art Unit	
	Kevin Mew	2616	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>11 March 2008</u>.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-10</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-10</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

Detailed Action

Response to Amendment

1.   Applicant's Remarks/Arguments filed on 3/11/2008 have been considered. Claims 1-10

are currently pending.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2.   Claims 1-2, 5, 7-8 are rejected under 35 U.S.C. 102(e) as being anticipated by Woods et

al. (US Publication 2002/0169993 A1).

Regarding claim 1, Woods discloses a method of distributing timing information across a

packet network (a packet communication network 100 for distributing timing data packets,

paragraph 0027, Fig. 3), the method comprising:

at a master component (at the master component/communication device 62, Fig. 3),

generating timing signal packets containing timing signals at predictable intervals using a clock

reference of a given frequency (generating timing data packets are generated by a master clock,

paragraph 0031), and broadcasting or multicasting the timing signal packets to a plurality of

client components over (timing packets are broadcasting to a plurality of modules 80-84,

paragraph 0027 and Fig. 3) said packet network (over packet communication network, Fig. 3),

preserving the timing signal packet interval (preserving timing data packet interval using the timestamp in the follow up packet, paragraph 0032); and

at each said client component (at each client modules, Fig. 3), receiving said timing signal packets (receiving timing data packets at the synchronized clock that includes a timing packet recognizer, paragraph 0033) and determining the intervals between successive packets (determining the timestamp in the follow up packet, paragraph 0033), applying a clock recovery algorithm to said determined intervals (applying adjustment to said timestamp in the follow up packet) to recover in substantially real time the original clock frequency (to recover the original master clock value, paragraph 0033), and synchronizing the frequency of a local clock of the client component to the recovered frequency (synchronizing the clock inside the synchronized clock of the client module with the master clock, paragraph 0033).

Regarding claim 2, Woods discloses a method according to claim 1, the method being used to distribute timing information between various components of a telecommunication system coupled together via a packet network (distributing timing data packets between various modules of a communication system 60 coupled together via a communication network 100, paragraph 0026 and Fig. 3).

Regarding claim 5, Woods discloses a method according to claim 1, the packet network providing a backplane of a telecommunications gateway (the communication network 100 provides a backplane/infrastructure of an Ethernet network, paragraph 0027 and Fig. 3).

Regarding claim 7, Woods discloses an apparatus (system 60, paragraph 0026 and Fig. 3)

for enabling the operating clock frequencies of a plurality of components (a plurality of modules

80-84, paragraph 0027 and Fig. 3), coupled to a packet network (coupled to a communication

network 100, Fig. 3), to be synchronized to the clock frequency of a master component (to be

synchronized to the master clock, paragraph and Fig. 4) also coupled to the packet network

(communication network 100, Fig. 3), the apparatus comprising:

means at a master component (at the master component/communication device 62, Fig.

3), generating timing signal packets containing timing signals at predictable intervals using a

clock reference of a given frequency (generating timing data packets are generated by a master

clock, paragraph 0031), and broadcasting or multicasting the timing signal packets to a plurality

of client components over (timing packets are broadcasting to a plurality of modules 80-84,

paragraph 0027 and Fig. 3) said packet network (over packet communication network, Fig. 3),

preserving the timing signal packet interval (preserving timing data packet interval using the

timestamp in the follow up packet, paragraph 0032); and

means at each said client component (at each client modules, Fig. 3), receiving said

timing signal packets (receiving timing data packets at the synchronized clock that includes a

timing packet recognizer, paragraph 0033) and determining the intervals between successive

packets (determining the timestamp in the follow up packet, paragraph 0033), applying a clock

recovery algorithm to said determined intervals (applying adjustment to said timestamp in the

follow up packet) to recover in substantially real time the original clock frequency (to recover

the original master clock value, paragraph 0033), and synchronizing the frequency of a local

clock of the client component to the recovered frequency (synchronizing the clock inside the

synchronized clock of the client module with the master clock, paragraph 0033).

Regarding claim 8, Woods discloses a gateway (system 60, Fig. 3) of a

telecommunications network (communication network 100, Fig. 3), the gateway (system 60)

comprising:

a plurality of components each operating at a local clock frequency (a plurality of

communication devices 62 and 64, paragraphs 0026-0027, Fig. 3), one of the components, the

master component (communication device 62, paragraph 0031 and Fig. 3), generating or

receiving a reference clock signal having a given frequency (generating a master clock,

paragraph 0031 and Fig. 3); and

a packet network backplane (communication network 100, paragraph 0027, Fig. 3) for

communicating packet data between said components (for communicating communication

packets between communication devices, paragraph 0027), a master component having means

for (at the master component/communication device 62, Fig. 3) generating timing signal packets

containing timing signals at predictable intervals using a clock reference of a given frequency

(generating timing data packets are generated by a master clock, paragraph 0031), and means for

broadcasting or multicasting the timing signal packets to a plurality of client components over

(timing packets are broadcasting to a plurality of modules 80-84, paragraph 0027 and Fig. 3) said

packet network (over packet communication network, Fig. 3), preserving the timing signal

packet interval (preserving timing data packet interval using the timestamp in the follow up

packet, paragraph 0032), to other components (to other modules 80-84, Fig. 3) operating at said

local clock frequencies (operating at local synchronized clock, paragraph 0033 and Fig. 3) via

said packet network backplane (via packet communication network 100, Fig. 3), and the

receiving components (at each client modules, Fig. 3) having means (time packet recognizer,

Fig. 4) for synchronizing their local clock frequencies to said reference clock frequency (for

synchronizing the synchronized clock with the master clock) by analyzing the intervals between

received timing signals (by analyzing the time stamp of each timing data packet received,

paragraph 0033).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

3.   Claims 3-4, 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woods

et al. in view of Dudziak et al. (US Publication 2003/0136232 A1).

Regarding claim 3, Woods discloses all aspects of claim 2 above.

Woods does not explicitly disclose a method according to claim 2, wherein said

components include one or more components (ONUs) coupled to TDM networks/links.

However, Dudziak teaches connecting ONUs to T1 line via T1 interface (Fig. 5; note that

T1 line is TDM digital transmission link).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify the synchronization method of Woods with the teaching of

Dudziak in showing connecting ONUs to T1 line via T1 interface such that the synchronization

method of Woods will comprise ONUs as the communication device in Woods and connect

ONUs/communication device to T1 line via T1 interface.

The motivation to do so is to provide optical communication between communication

devices in the synchronization system of Woods.

Regarding claim 4, Woods discloses all aspects of claim 1 above.

Woods does not explicitly disclose a method according to claim 1, wherein one or more of

the components is coupled to a T1 or E1, T3 or E3, SONET or SDH link, performing a data

conversion function between the T1 or E1, T3 or E3, SONET or SDH data format and the packet

network data format.

However, Dudziak discloses wherein one or more of the components is coupled to a T1

(T1, paragraph 0034 and Fig. 1), T3 (T3, paragraph 0035, Fig. 1), performing a data conversion

function between the T1, T3 data format and the packet network data format (performing data

format conversion from T3 to T1, paragraphs 0034, 0035, Figs. 1 and 5).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify the synchronization method of Woods with the teaching of

Dudziak in showing data conversion between T1, T3 data format and the packet network data

format such that one or more of the components is coupled to a T1 or E1, T3 or E3, SONET or

SDH link, performing a data conversion function between the T1 or El, T3 or E3, SONET or

SDH data format and the packet network data format.

      The motivation to do so is to allow systems of data different formats to communicate

over a gateway.

      Regarding claim 9, Woods discloses all aspects of claim 8 above, except fails to

explicitly disclose a gateway according to claim 8, wherein at least one of said components is a

TDM line card, coupled in use to a TDM link.

      However, Dudziak discloses a TDM line card (ONU, element 114, Fig. 5), coupled in use

to a TDM link (coupled to T1 line via T1 interface, paragraph 0035 and Fig. 5).

      Therefore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify the synchronization method of Woods with the teaching of

Dudziak in showing a TDM line card, coupled in use to a TDM link such that system 60 of

Woods is a gateway that comprises the modules of Woods are TDM lines card to couple in use to

TDM links.

      The motivation to do so is to provide TDM communications at a specific transmission rate

such as the one of T1 link.

      Regarding claim 10, Woods discloses all aspects of claim 9 above, except fails to

explicitly disclose a gateway according to claim 9, wherein at least one of the components is be a

TDM line card coupled to a T1 or El link whilst at least one other component is a TDM line card

coupled to a T3, E3, SONET or SDH link, the gateway performing up and down conversions for data received and sent via the links.

However, Dudziak discloses wherein one or more of the components is coupled to a T1 (T1, paragraph 0034 and Fig. 1), T3 (T3, paragraph 0035, Fig. 1), performing a data conversion function between the T1, T3 data format and the packet network data format (performing data format conversion from T3 to T1, paragraphs 0034, 0035, Figs. 1 and 5).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the synchronization method of Woods with the teaching of Dudziak in showing data conversion between T1, T3 data format and the packet network data format such that at least one of the modules in Woods is be a TDM line card coupled to a T1 link whilst at least one other modules is a TDM line card coupled to a T3, the gateway/system 60 performing up and down conversions for data received and sent via the links.

The motivation to do so is to allow systems of data different formats to communicate via a gateway.

4.   Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Woods et al. in view of Chang (US Publication 2003/0020991 A1).

Regarding claim 6, Woods discloses all the aspects of claim 1 above. Woods also discloses a method according to claim 1, comprising including in said packets (data transmission clock, paragraph 0035).

Woods does not explicitly show a priority marker, upon recognition of such packets at routers/switches of the packet network, forwarding them with the highest possible priority.

However, Chang discloses an upstream frame in a PON system, which comprises a priority field (paragraphs 0040, 0041 and Fig. 6).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of synchronizing system and method of Woods with the teaching of Chang in including a priority field in an upstream frame transmitted in a PON system such that the synchronization method of Woods will show a priority marker, upon recognition of such packets at routers/switches of the packet network, forwarding them with the highest possible priority.

The motivation to do so is to define the priority level of the data packets with respect to data traffic flow such that data packets with highest priority, such as voice data, will be transmitted first than image pictures with a lower priority.

Response to Arguments

5.   Applicant's arguments filed on 3/11/2008 have been fully considered but are moot in view of the new ground(s) of rejection.

Conclusion

6.   Any inquiry concerning this communication or earlier communications from the
examiner should be directed to Kevin Mew whose telephone number is 571-272-3141. The
examiner can normally be reached on 9:00 am - 5:30 pm.

        If attempts to reach the examiner by telephone are unsuccessful, the examiner's
supervisor, Chi Pham can be reached on 571-272-3179. The fax phone number for the
organization where this application or proceeding is assigned is 571-273-8300.

        Information regarding the status of an application may be obtained from the Patent
Application Information Retrieval (PAIR) system. Status information for published applications
may be obtained from either Private PAIR or Public PAIR. Status information for unpublished
applications is available through Private PAIR only. For more information about the PAIR
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like assistance from a USPTO Customer Service Representative or access to the automated
information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kevin Mew   /K. M./   /Chi H Pham/
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                                              5/27/08